

SECTION 32 93 00
BIORETENTION AREA PLANTS

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. American Association of Nurserymen (AAN): Z60.1, Nursery Stock.
2. Federal Housing Administration (FHA), Section 1103-103.
3. Hortus Third, Liberty Hyde Bailey, Hortorium, 1976.

1.02 DEFINITIONS

A. Measurement:

1. In size grading Balled and Burlapped (B & B), caliper takes precedence over height.
2. Take trunk caliper 6 inches above the ground level (up to and including 4-inch caliper size) and 12 inches above the ground level for larger trees.
3. Measure size of container-grown stock by height and width of plant.
4. Measure herbaceous perennials pot size, not top growth.

1.03 SUBMITTALS

A. Action Submittals:

1. Plant materials source list.
2. Product data on manufactured products specified.

B. Informational Submittals:

1. Operation and Maintenance Data: Instructions for storage, planting, care, and maintenance of each type of plant for 1-year period in climate and location of the Project.
2. Special guarantee.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Cover plants during shipment with a tarpaulin or other suitable covering to minimize drying.

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- B. Balled and Burlapped Plants: Wrap each ball firmly with burlap and securely bind with twine, cord, or wire for shipment and handling. Drum-lace balls with a diameter of 30 inches or more.
- C. As specified herein for transplanting.

1.05 SPECIAL GUARANTEE

- A. Provide extended guarantee or warranty, with Contracting Officer named as beneficiary, in writing, as special guarantee. Special guarantee shall provide for removal and replacement with new plants those transplanted or newly planted plants found defective or to be dead or not in a vigorous, thriving condition during a period of 2 year(s) after the date of Substantial Completion. Duties and obligations for correction or removal and replacement of defective Work as specified in the General Conditions.
- B. Replace defective plants with new plants free of dead or dying branches and branch tips, and bearing foliage of a normal density, size, and color. Closely match new plants to adjacent specimens of the same species and meet requirements of this Specification.
- C. Plant replacement plants that die during a season unfavorable for planting during first month of next favorable planting season.
- D. Plants damaged or lost due to Project (or any part thereof) occupancy, vandalism, or acts of neglect by others are not subject to this special guarantee.

1.06 MAINTENANCE

- A. Commence to maintain plant life immediately after planting and maintain for a minimum of one growing season, and until plants are well established and exhibit a vigorous growing condition through special guarantee period.
- B. In accordance with accepted Submittal on care and maintenance of plants and as follows:
 - 1. Maintain by watering, pruning, cultivating, and weeding as required for healthy growth. Restore planting saucers.
 - 2. Tighten and repair stake and guy supports and reset trees and shrubs to proper grades or vertical position as required.
 - 3. Restore or replace damaged wrappings. Spray as required to keep trees and shrubs free of insects and disease.
 - 4. Remove guys, stakes, and other supports at end of maintenance service.

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5. Maintenance includes temporary protection fences, barriers, and signs as required for protection.
6. Coordinate watering to provide deep root watering to newly installed trees.

1.07 SCHEDULING AND SEQUENCING

- A. Plant Deliveries: Notify Contracting Officer at least 3 days in advance of each delivery.
- B. Planting Season: Plant only between March 15 and June 10.
- C. Plant trees and shrubs after final grades are established and before planting of lawns or grasses.

PART 2 PRODUCTS

2.01 PLANT MATERIALS

- A. Provide quantity, size, genus, species, and variety of trees and shrubs indicated; comply with applicable requirements of AAN Z60.1.
- B. Nomenclature (Names of Plants): In accordance with "Hortus Third".
- C. Quality and Size:
 1. Nursery-grown, habit of growth normal for species.
 2. Sound, healthy, vigorous, and free from insects, diseases, and injuries.
 3. Equal to or exceeding measurements specified in plant list. Measure plants before pruning with branches in normal position.
 4. Root System of Container-Grown Plants: Well developed and well distributed throughout the container, such that the roots visibly extend to the inside face of the growing container.
 5. Perform necessary pruning at time of planting.
 6. Sizes: Dimensional relationship requirements of AAN Z60.1 for kind and type of plants required.
 7. Balled and Burlapped Plants: Firm, intact ball of earth encompassing enough of the fibrous and feeding root system to enable full plant recovery.
 - a. Ball Size: AAN Z60.1.

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8. Container-Grown Plants: Self-established root systems, sufficient to hold earth together after removal from container, without being root bound.
 - a. Stock: Grown in delivery containers for at least 6 months but not over 2 years.
9. Label each tree and shrub of each variety with securely attached waterproof tag bearing legible designation of botanical and common name.

D. Plant List:

1. Minimum Tree Size: 2-inch caliper.
2. Minimum Shrub Size: 5-gallon container volume.

- E. Replacement Shrubs and Trees: Same species, size, and quality as specified for plant being replaced, except existing trees larger than 4-inch caliper may be replaced with 4-inch caliper trees.

2.02 ANTIDESICCANT

- A. Provide transpiration retarding material to be used where any plant material is moved during the growing season.
- B. Products:
1. Foliguard.
 2. Wiltpruf.
 3. Approved equal.

2.03 GUYING, STAKING, AND WRAPPING MATERIALS

- A. Wood Stake: 2 inches by 2 inches by 8 feet.
- B. Tree Ties: No. 4 chainlock tree ties as manufactured by Green Brothers, Ltd.
- C. Guy Wires: Galvanized, 12-gauge, ductile steel.
- D. Flags:
1. Wood: 1/2 inch by 3 inches by 12 inches, with 3/8-inch hole centered 1-1/2 inches from each end, painted white.
 2. Sheet Metal: 1-1/2 inch with clipped corners and both ends punched, painted white.

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- E. Hose: Two-ply, reinforced rubber garden hose, not less than 1/2-inch diameter, new or used.
- F. Turnbuckles: Zinc-coated, with 6-1/2-inch lengthwise opening, and at each end 3/8-inch diameter threaded openings fitted with screw eyes.
- G. Wrapping Material: Heavy crepe paper.
 - 1. Burlap: Of first quality, minimum 8 ounces in weight, not less than 6 inches nor more than 10 inches in width.
- H. Deadmen: 6 inches by 6 inches by 3 feet long pressure treated timbers.

2.04 MULCH

- A. Free from noxious weed seed and foreign material harmful to plant growth.
- B. Barkdust: Medium grind, fir, pine, or hemlock; maximum 3/4-inch particle size.
- C. Stone Mulch:
 - 1. Round river rock, washed, with no fines.
 - 2. Stone Size: Minimum 1 inch; maximum 3 inches.
- D. Fiberglass Mulch:
 - 1. Fiberglass yarn mat.
 - 2. Manufacturer: Gustin-Bacon Manufacturing Co., of Kansas City, MO.

2.05 PEAT MOSS

- A. Sphagnum peat moss, fibrous type with neutral pH.

2.06 HERBICIDE

- A. Selective, pre-emergent, surface-applied.
- B. Manufacturers and Products:
 - 1. Eli Lilly and Co.; Surflan.
 - 2. Thompson-Hayward Chemical Co.; Casoron.

2.07 PLANTING SOIL MIX

- A. As shown on Drawings.

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2.08 FERTILIZER

- A. “Right Start Fertilizer Packets” from Treessentials Company:
 - 1. One packet per gallon size container will be placed below the root ball, up to a maximum of 3 packets per tree.

PART 3 EXECUTION

3.01 TRANSPLANTING

- A. Remove existing plantings identified for transplant prior to beginning Work in area in accordance with standard nursery practices and as specified herein.
- B. Nondormant Plants: Prior to digging, spray foliage with antidesiccant, as recommended by manufacturer.
- C. Cover balls and containers of plants that cannot be planted immediately with moist soil or mulch.
- D. Water plants as often as necessary to prevent drying until planted.
- E. Do not remove container-grown stock from containers before time of planting.
- F. Bare-Root Plants:
 - 1. Dig up with least possible injury to fibrous root system.
 - 2. Immediately upon removal from ground, cover roots with thick coating of mud or wrap in wet straw, moss, or other suitable packing material for protection from drying until planted.
 - 3. Plant or heel-in immediately upon relocation to temporary storage. Open and separate bundles of bare-root plants, and eliminate air pockets among roots as they are covered.
- G. Replant each temporarily removed tree, shrub, or other plant only after construction activities are completed and applicable grading and topsoil replacement is completed in its vicinity. Replant trees, shrubs, and other plants in their original positions, unless otherwise shown or approved. Plant as specified for new plants.
- H. Maintain transplanted materials in same manner as new trees and shrubs.

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3.02 LOCATION OF PLANTS

- A. Locate new planting or stake positions as shown, unless obstructions are encountered, in which case notify Contracting Officer.
- B. Locate no planting, except ground cover, closer than 18 inches to pavements, pedestrian pathways, and structures.
- C. Request Contracting Officer observe locations and adjust as necessary before planting begins.

3.03 PREPARATION

- A. Subsoil Drainage: Furnish where shown.
- B. Planting Soil: Delay mixing of amendments and fertilizer if planting will not follow preparation of planting soil within 2 days. For pit and trench type backfill, mix planting soil prior to backfilling and stockpile at Site.
- C. Plants: Place on undisturbed existing soil or well-compacted backfill.
- D. Trees and Shrubs:
 - 1. Pits, Beds, and Trenches: Excavate with vertical and scarified sides.
 - 2. B & B Trees and Shrubs: Make excavations at least twice as wide as root ball.
 - 3. Container-Grown Stock: Excavate as specified for B & B stock, adjust for size of container width and depth.
 - 4. Bare-Root Trees: Excavate pits to a width to just accommodate roots fully extended and depth to allow uppermost roots to be below original grade.
 - 5. Fill excavations with water and allow to percolate out prior to planting.
- E. Ground Cover Beds:
 - 1. Mix amendments and fertilizer with top soil prior to placing or apply on surface of top soil and mix thoroughly before planting.
 - 2. Scarify top soil to a depth of 4 to 6 inches.
 - 3. Establish finish grading of soil. Rake areas to smooth and create uniform texture and fill depressions.
 - 4. Moisten.

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3.04 PLANTING

- A. Plant trees before planting surrounding smaller shrubs and ground covers. Adjust plants with most desirable side facing toward the prominent view (sidewalk, building, street).
- B. B & B Plants: Place in pit by lifting and carrying by its ball (do not lift by branches or trunk). Lower into pit. Set straight and in pit center with tip of rootball 1 to 2 inches above adjacent finish grade.
- C. Bare-Root Plants: Spread roots and set stock on cushion of planting soil mixture. Set straight in the pit center so that roots, when fully extended, will not touch walls of the planting pit and the uppermost root is just below finish grade. Cover roots of bare-root plants to the crown.
- D. Container-Grown Plants: Remove containers, slash edges of rootballs from top to bottom at least 1-inch deep. Plant as for B & B plants.
- E. Ground Covers: Dig planting holes through mulch with one of the following: hand trowel, shovel, bulb planter, or hoe. Split biodegradable pots or remove nonbiodegradable pots. Root systems of all potted plants shall be split or crumbled. Plant so roots are surrounded by soil below the mulch. Set potted plants so pot top is even with existing grade.

3.05 BACKFILLING

- A. Backfill with planting soil, except where existing soil is suitable according to top soil analysis.
- B. B & B Plants:
 - 1. Partially backfill pit to support plant. Remove burlap and binding from sides and tops of B & B plants, do not pull burlap from under balls.
 - 2. When excavation is approximately 2/3 full, water thoroughly before placing remainder of backfill to eliminate air pockets even if it is raining. Finish backfilling pit sides.
 - 3. Never cover top of rootball with soil. Form a saucer above existing grade, completely around the outer rim of the plant pit.
- C. Bare-Root Plants:
 - 1. Plumb before backfilling and maintain plumb while working backfill around roots and placing layers above roots.

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2. Set original soil line of plant 1 inch to 2 inches above adjacent finish landscape grades. Spread out roots without tangling or turning up to surface. Cut injured roots cleanly; do not break.
3. Carefully work backfill around roots by hand; puddle with water until backfill layers are completely saturated.

3.06 GUYING, STAKING, AND WRAPPING

- A. Support trees immediately after planting to maintain plumb position.
- B. Guying: Support deciduous trees over 4 inches in caliper and all coniferous trees with three guys equally.
- C. Staking: Support deciduous trees 4 inches in caliper or less with stakes spaced equally about each tree.
- D. Wrapping: Spirally wrap trunks of deciduous trees from ground line to height of second branches, promptly after planting. Wrap neatly and snug. Hold material in place with raffia cord at top and bottom.

3.07 FERTILIZER

- A. See Section 2.08 A. Use same fertilizer, but apply one half the recommended amount for trees and shrubs.
- B. Organic:
 1. Trees and Shrubs: Spread within planting saucer, according to manufacturer's recommendation for trees or shrubs.

3.08 MULCHING

- A. Cover planting beds and area of saucer around each plant with 2-inch thick layer of wood mulch within 2 days after planting. Saturate planting area with water.

3.09 PRUNING AND REPAIR

- A. Prune only after planting and in accordance with standard horticultural practice to preserve natural character of the plant. Remove all dead wood, suckers, and broken or badly bruised branches. Use only clean, sharp tools. Do not cut lead shoot.

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3.10 WEED CONTROL

- A. Maintain a weed-free condition within planting areas. Apply pre-emergent selective herbicide to mulched beds at manufacturer's recommended rate of application.

3.11 PROTECTION OF INSTALLED WORK

- A. Protect planting areas and plants against damage for duration of maintenance period.

END OF SECTION